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SUBMISSION

Draft NSW Murray-Darling Basin Porous Rock Water Resource Plan

Introduction

The Inland Rivers Network (IRN) is a coalition of environment groups and individuals concerned about the degradation of the rivers, wetlands and ground waters of the Murray-Darling Basin. It has been advocating for the conservation of rivers, wetlands and groundwater in the Murray-Darling Basin since 1991.

IRN appreciates the opportunity to comment on the draft NSW Murray-Darling Basin (MDB) Porous Rock Water Resource Plan (draft WRP).

Background

IRN submitted substantial comments to the Status and Issues Paper on the NSW MDB Porous Rock WRP released in 2017.

We raised the issue of the high level of unallocated water in this water source and the need to protect water availability near Groundwater Dependent Ecosystems (GDEs).

We also raised that the impacts of mining on groundwater levels and water quality is a major community concern. The issues raised in our initial submission have not been addressed.

The WRP area is highly complex containing four different unconnected resource units with different characteristics, use rates and risks.

The draft WRP identifies a number of areas of high risk for this groundwater source and high levels of poor water quality in the western areas. There is a lack of data on both these important planning matters.

There are a high number of priority groundwater dependent ecosystems (GDEs) supported by this groundwater source, as listed in Schedule 2 of the draft water sharing plan (WSP). We consider that this list is not exhaustive and should be added to with more rigorous on ground assessment of springs, particularly in the top of river catchments.

It is of great concern that there is currently no monitoring of groundwater dependent vegetation and condition and that none is proposed in the draft WRP.

IRN is also concerned that consultation has occurred with only four First Nations peoples of the 15 First Nations peoples with country in the WRP area. The draft WRP should not be on exhibition for comment with this significant lack of information.

The Sustainable Diversion Limit (SDL) and Long Term Average Annual Extraction Limit (LTAAEL) are far too high in this groundwater source and have no relationship to the historic level of take or current entitlements.

IRN does not support the draft WRP and accompanying WSP because of the information gaps and failure to prevent no net reduction in the protection of planned environmental water or to adequately protect the environmental values supported by this groundwater source.

Groundwater Dependent Ecosystems (GDEs)

There are a significant number of high and very high value GDEs occur in the WRP area. These include wetlands listed under Ramsar and the Directory of Important Wetlands in Australia, karst, springs, endangered ecological communities, threatened species, Basin target vegetation, extensive riparian vegetation corridors and in some areas, base flows.

Ecological values include groundwater dependent woodland forests and wetlands including black box, lignum, river red gum, yellow box and coolibah and non woody wetlands.

Connectivity between groundwater sources and to surface water sources is an important aspect of this extensive groundwater source.

The risk assessment outcomes for potential risks to GDEs associated with groundwater extraction causing drawdown were medium and high in the NSW MDB Porous Rock WRP area.

Distance rules for water supply works approvals are the key management tool for protecting GDEs in groundwater sources.

The rules in the current WSP are:

To protect bores located near sensitive environmental areas:

No water supply works (bores) granted or amended within:

- 100 m of a high priority GDE in the case of a water supply work used solely to take water for to basic landholder rights
- 200 m of a high priority GDE in the case of a water supply work used for production and a distance of greater than 200 m if the bore is likely to cause drawdown at the perimeter of the GDE
- 500 m of a high priority karst GDE or escarpment
- 40 m from the top of the high bank of a river or stream

Proposed new rules:

Cl 43 Rules for water supply works located near high priority groundwater-dependent ecosystems

(1) A water supply work approval must not be granted or amended if, in the Minister's opinion, the water supply work is located within any of the following:
(a) 40 metres of the top of the high bank of a river,
(b) 200 metres of any other high priority groundwater-dependent ecosystem shown on the High Priority Groundwater-Dependent Ecosystem Map,
(c) 500 metres from a high priority karst environment groundwater-dependent ecosystem shown on the High Priority Groundwater-Dependent Ecosystem Map,
(d) 500 metres from the edge of an escarpment, where the location of the water supply work is above the escarpment.

The proposed new rules are similar but remove the protection of '*greater than 200 m if the bore is likely to cause drawdown at the perimeter of the GDE*.'

This is a loss of protection for high priority GDEs in the groundwater source. There should be no permissible drawdown of GDEs.

The following proposed rules are not acceptable because they decrease the protection of high priority GDEs in the groundwater source.

Cl 43 (2) (d) the location of the water supply work at a lesser distance than that specified in subclause (1) would result in no more than minimal impact on any high priority groundwater-dependent ecosystem shown on the High Priority Groundwater-Dependent Ecosystem Map.

There should be no permissible impact of water extraction on high priority GDEs

Cl 43 (3) The location restrictions in subclause (1) (b) do not apply to high priority groundwater-dependent ecosystems shown on the High Priority Groundwater-Dependent Ecosystem Map unless a high probability of groundwater dependence has been confirmed by the Department.

High priority GDEs are on the map because they are groundwater dependent. This clause is a direct threat to the protection of high priority GDEs.

Cl 45 Rules for Basic Rights bores set back remain unchanged.

However, IRN does not support the additional exemptions in sub clause 2:

(2) The location restrictions specified in subclause (1) do not apply to the granting or amending of a water supply work approval if the Minister is satisfied of any of the following:
(a) the water supply work is a replacement groundwater work,
(b) the location of the water supply work at a lesser distance than that specified in subclause (1) (c) would result in no more than minimal impact on any high priority groundwater-dependent ecosystem shown on the High Priority Groundwater-Dependent Ecosystem Map,
(c) the location of the water supply work at a lesser distance than that specified in subclause (1) (d) will result in no more than minimal impact on any groundwater-dependent culturally significant area.

These exemptions reduce the protection of high priority GDEs. There should be no permissible impact of water extraction on high priority GDEs.

IRN supports a state-wide set back distance of 200m from GDEs for basic landholder rights bores. This is because basic rights bores are unlicensed and unmetered and there are no restrictions on the number of basic rights bores.

Cl 46 Replacement water supply works should not be exempt from the set back rules.

IRN does not support that the proposed set back rules in the draft WSP will provide protection for high priority GDEs in this groundwater source.

Cl 55 (2) provides provisions relating to access licences associated with EP&A Act development.

IRN does not support Cl 58 (3) (a), (c) or (d) giving provision for minimal harm. There should be no harm to priority GDEs, other water users, public health and safety or to groundwater dependent culturally significant areas.

These provisions should be consistent with Cl 58 (3) (b) with no adverse effect.

EP&A Act development should have no impacts on other groundwater uses.

Connectivity

The draft WRP states that '*Groundwater sources generally store large volumes of water, often accumulated over thousands of years, and this stored water is also replenished from time to time by rainfall, river and flood flows, and through flow from other groundwater sources*.'[1]

The four resource units of the NSW MDB Porous Rock WRP area have varying degrees of connectivity to their associated surface water systems. It is recognised that groundwater extraction can, over time, potentially impact the surface water/groundwater flux. It is also recognised that bores drilled through overlying unconsolidated alluvial sediments or other rock aquifers may draw water from porous rock groundwater sources.

[1] Draft WRP 4.1.1 p 32

The Gunnedah-Oxley Basin is buried beneath other SDL resource units consisting of alluvial sediments, basalt, and the Great Artesian Basin sediments. There is limited information on the degree of connection between the Gunnedah-Oxley Basin MDB and the overlying strata. However, the Pilliga Sandstone areas have a potential for groundwater exchange.

This is a significant area that needs more investigation, particularly in regard to coal and coal-seam gas development.

The surface expression of the basin extends from south of Dubbo in the south west to north of Narrabri in the north, and is generally cut by three major river systems being the Namoi River in the north, Castlereagh River in the west, and the Macquarie River in the south.

The surface water systems overlying the Gunnedah-Oxley Basin are considered to be in low hydraulic connection with a lag time in groundwater pumping impacts. However, this resource unit has the highest number of aquifer access licences in the groundwater source. The dependence on groundwater during times of drought could have future impacts on surface water connectivity.

The overlying river systems are currently under extreme pressure with drought and climate change related water shortages. There needs to be improved understanding of the relationship between groundwater extraction and surface water impacts in this resource unit before any more access to unassigned water is granted through controlled releases of new allocations.

The Sydney Basin MDB is the western edge the Sydney Basin with higher elevated areas, along with the higher rainfall and more incised nature of the sediments. This can facilitate groundwater to discharge as baseflow into creeks along the upper catchments. As such, streamflows may be reliant on groundwater discharge during drought times.

The main surface water features include the upper tributaries of the Talbragar River in the north, Cudgegong River in the central area, and the Turon / Crudine River system in the south. These are all tributary systems of the Macquarie catchment that is currently under extreme stress of water shortages due to drought.

The protection of the connectivity to surface flows is very important. This is particularly in regard to the impacts of coal mining interception in the resource unit.

For example the Ulan Coal Mine has approval under the EP&A Act to intercept base flows to the Talbragar River. This drawdown will continue for a long time after mining operations cease. This impact on GDEs and instream ecological values will be exacerbated by reduction in rainfall through climate change, as is being experienced in that surface water source now.

The Western Porous Rock resource unit lies within the Murray Geologic Basin bounded on three sides by older fractured rocks of the Adelaide, Kanmantoo and Lachlan Fold Belts which also form the underlying basement rocks.

This resource unit has been described as the major cause of outflow of saline ground water to the rivers and land surface within the area. The management of this through salt interception schemes and salt management licences must be further understood in regard to the connectivity to surface water sources and management of freshwater flows.

The extent of the Western Porous Rock resource unit covers much of the Lower Darling catchment. Surface water drainage is dominated by the two main river systems of the MDB being the Murray and Darling rivers.

Within this resource unit water tables are generally below surface water systems, representing a “losing system” for streams or rivers where water is lost from the surface water flow to the groundwater system. The lower Murray River prior to reaching the South Australian border alternates from losing to gaining conditions.

This connectivity is extremely important and must be a prime consideration before any more water is allocated for extraction from this resource unit.

The Lower Darling water source is under extreme risk from climate change and poor upstream water management. Further losses of streamflow into the Western Porous Rock resource unit caused by increased levels of extraction near the river must be avoided.

The Oaklands Basin resource unit is completely buried under the alluvium associated with the Murray and Murrumbidgee alluvial areas with no surface topographical features. There is no longer any recharge to the system, therefore it contains fossil water.

Due to the depth, high salinity and expected low yields, this resource unit is not a target for groundwater supply and there is no recorded groundwater extraction from this basin.

IRN considers that there should be no access to this water by a future controlled release of unassigned water through supplementary licence allocation, as noted in the draft WSP. This would result in a net reduction of protection of planned environmental water in this resource unit.

The issue of connectivity across state borders for the Gunnedah-Oxley Basin and Western Porous Rock resource units has not been addressed in the draft WRP.

The draft WSP has provisions for interstate trade from and to this groundwater source. This would be subject to there being in place inter-state agreements and administrative processes to enable such.

There appears to be no policy or statutory imperative for addressing the impacts of groundwater extraction in one state, on other uses across the border.
IRN considers that connectivity issues for this groundwater source are very complex and need more research to better understand the impacts of extraction from the various resource units.

Improved monitoring and information about connectivity is imperative before any consideration of controlled allocation releases is undertaken.

Recharge

This groundwater source has varying degrees hydrological connectivity to surface waters and adjacent groundwater sources across the various resource units. As it contains water accumulated over thousands of years, the protection of recharge is highly significant for long term sustainability.

Recharge is important for maintaining water quality and quantity and the structural integrity of aquifer systems.

IRN strongly opposes the proposed removal of the protection of recharge by changing the definition of planned environmental water as specified in WSP.

Risk Assessment

The risk assessment for the draft WRP has identified a number of high and medium risks to this groundwater source.

The Gunnedah-Oxley Basin resource unit has the highest level of risk including a high risk of groundwater use causing local drawdown to GDEs and instream ecological values.

The Western Porous Rock resource unit also has a number of assessed risks including impacts on GDEs.

For these reasons IRN strongly objects to the proposal to release further allocations of unassigned water in either of these resource units.

IRN considers that the SDL/LTAAEL for these resource units is too high and will cause future impacts on dependent high priority GDEs if they are fully developed.

The risk of increased poor water quality, including to GDEs, is not acceptable and will not be adequately managed by the proposed rules in the WSP.

We do not accept that the risk of climate change impacts is low in all of the resource units. The impact of climate change on recharge and connectivity is already being felt in the NSW MDB with the current drought of record on top of the impacts of the Millenium Drought.

We also do not accept that the risk of mining interception reducing groundwater availability to GDEs and instream ecological values is low, particularly in the Sydney Basin MDB and Gunnedah-Oxley Basin resource units.

Impacts of mining on baseflows is already occurring in both these resource units.

IRN does not consider that the proposed strategies for managing risk in this groundwater source are adequate or that the rules in the draft WSP will protect GDEs and instream ecological values from risk.

Water Quality

We note that Water Quality Management Plan (WQMP) aims to provide a framework to protect, enhance and restore water quality that is fit for purpose for a range of outcomes that:

- Fulfil First Nation peoples spiritual, cultural, customary and economic values
- Protect and improve ecological processes and healthy aquatic ecosystems
- Provide essential and recreational amenities for rural communities
- Assist agriculture and industry to be productive and profitable

Salinity levels are generally high in all the resource units of the NSW MDB Porous Rock groundwater source with the exception of the Spring Ridge area of the Gunnedah-Oxley Basin and in freshwater lenses associated with the Murray River in the Western Porous Rock resource unit.

There is hyper salinity in areas of the Western Porous Rock resource unit.

The risk assessment has identified risk of groundwater extraction inducing connection with poor quality GW and risk of land management induced salinity impacting on GDEs and instream ecological values.

IRN does not support that the strategies and associated water management actions and mechanisms, as outlined in Table 6-1[2] will adequately address the risks of poor water quality.

As outlined above, the provisions under Part 9 of the draft WSP do not adequately protect GDEs or instream ecological values. These provisions will not protect GDEs and environmental values from the risk of salinity impacts.

We note that there is no information on water quality within the Oaklands Basin resource unit and there are no water licences nor basic landholder rights for this unit. IRN maintains that there should be no supplementary water licences released for access to water in this resource unit.

IRN does not support that the proposed WQMP for the NSW MDB Porous Rock groundwater source will meet its objectives.

LTAAEL/SDL and Access Rights

The draft WRP identifies that in the NSW MDB Porous Rock WRPA, the current level of entitlement volume is generally far less than the LTAAEL/SDLs. This is considered to be 'unassigned water.'

During the life of the WRP, it is proposed that periodic controlled allocation processes are held to offer opportunity to purchase additional water entitlements for specified resource units.

[2] Ibid p 60

IRN does not support this approach and considers that the main purpose of this release of 'unassigned' water is for the purpose of enabling increased interception by mining and coal-seam gas development.

A variety of risks have been assessed for this groundwater source that will not be mitigated through the release of more water access.

These issues indicate that the LTAAEL/SDL are too high and need to be reduced to the current level of access rights, as has occurred in other resource units.

IRN strongly opposes the proposed release of supplementary water licences to access the fossil water in the Oaklands Basin resource unit.

The release of unassigned water in the NSW MDB Porous Rock groundwater source will result in a net reduction in the protection of planned environmental water.

Water Sharing Plan Objectives

IRN supports the broad environmental objective of the NSW MDB Fractured Rock Groundwater Sources WSP.

This is to protect the condition of the groundwater sources and their groundwater-dependent ecosystems over the term of the plan.

This support includes the targeted objective to protect the extent and condition of high priority groundwater-dependent ecosystems that rely on the groundwater sources. Also to protect the structural integrity of the aquifers.

We note that there is no targeted objective to improve salinity levels in the groundwater source. This should be included.

The performance measures need to include the maintenance of the structural integrity.

A targeted objective to contribute to the maintenance of the structural integrity of the aquifer and improved salinity levels should also be included in the economic, social and cultural objectives.

Proposed WSP Rules

1. Minimum distance rules

As stated above, IRN does not support the proposed minimum distance rules for water supply works.

These will not provide the required protection to GDEs and instream ecological values from risk, as proposed in the risk management strategies and WQMP.

2. Removal of protection of recharge

IRN does not support the proposed rule change for the protection of planned environmental water. The protection of recharge inflows to this groundwater source is critical to meet the objectives of the WRP.

3. Time period for LTAAEL compliance

IRN does not support a time period of five years over which compliance with the LTAAEL is assessed in the NSW MDB Fractured Rock groundwater source.

IRN considers that consistency of compliance to LTAAEL should be a three year rolling average across all water sources in NSW.

This will give much greater assurance that planned environmental water is protected.

4. Compliance triggers

IRN supports that triggers for requiring action to ensure compliance with the LTAAEL remain at 5% across all resource units in the NSW MDB Fractured Rock groundwater source.

5. Operation of water allocation accounts

IRN does not support Cl 38 (3) (a) 1.25 ML per unit share as the maximum water account debit in a water year for access licenses in this groundwater source. Maximum water account debit in a water year must not exceed 1 ML per unit share.

IRN does not support .25 ML carry over of aquifer access licenses in this groundwater source.

6. Interstate trade

We note that provisions in Cl 52 allow for the transfer of access licences interstate from the Gunnedah–Oxley Basin MDB and Western Murray Porous Rock resource units. These may only be permitted where administrative arrangements have been agreed to and implemented by the States.

There appears to be no policy or statutory imperative for addressing the impacts of groundwater extraction in one state, on other uses across the border.

While the draft WSP includes provisions to give effect to any future arrangements in regard to interstate trade, there needs to be careful consideration given to the protection of GDEs and instream ecological values in any trade rules.

7. Amendments to WSP

IRN supports Cl 65 that allows adjustment to the SDL/LTAAEL as per the Basin Plan. We recommend that this adjustment occur at the commencement of the WSP so that the SDL/LTAAEL is lowered.

Conclusion

IRN does not consider that the draft NSW MDB Porous Rock WRP will meet the requirements of the Basin Plan.

The proposed WSP rules will not protect GDEs and instream ecological values, or planned environmental water, and will not achieve management of risk or improve water quality.

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